

**Claims:**

1 1. A system for retracting an introducer needle of a catheter  
2 placement device, comprising:

3 a hollow body having a closed end, a nose attached to an open  
4 end and release tabs;

5 a needle hub having the introducer needle embedded therein,  
6 the needle hub releasably attached to the nose;

7 an energy storage device in contact with the needle hub; and

8 a catheter substantially covering the introducer needle and  
9 releasably affixed to the nose.

1 2. The system of claim 1, further comprising a catheter head  
2 affixed to the catheter.

1 3. The system of claim 2, further comprising a nose boot  
2 attached to and covering an end of the nose and penetrable by the  
3 introducer needle, the nose boot cooperating with the catheter  
4 head to provide a liquid tight seal therebetween.

1 4. The system of claim 1, wherein the needle hub further  
2 comprises two winged beams having ends, cantilevered from a back  
3 portion of the needle hub and projecting at an angle away from the  
4 needle hub, the ends of the winged beams defining angled catches.

1 5. The system of claim 4, wherein the release tabs are adjacent  
2 to the angled catches.

1 6. The system of claim 4, further comprising retainer slots in  
2 sidewalls of the nose whereby the angled catches of the winged  
3 beams hold the needle hub in the retainer slots.

1 7. The system of claim 2, further comprising a seal for  
2 providing a liquid impervious seal between the nose and a catheter  
3 head.

1 8. The system of claim 1, wherein the energy storage device  
2 surrounds a portion of the needle hub.

1 9. The system of claim 1, further comprising a needle guard  
2 removably attached to and covering the introducer needle, nose,  
3 catheter, release tabs and a portion of the hollow body.

1 10. The system of claim 1, wherein the nose is generally  
2 elliptical.

1 11. The system of claim 1, wherein the needle hub is hollow and  
2 includes a magnified transparent cavity.

1 12. The system of claim 1, wherein upon an initial depression and  
2 release of the release tabs, a tip of the introducer needle  
3 partially retracts within an end of the catheter, and upon  
4 subsequent depression of the release tabs, the energy storage  
5 device triggers and projects the needle hub and attached  
6 introducer needle into an interior of the hollow body.

1 13. The system of claim 1, further comprising a membrane affixed  
2 to a distal end of the needle hub adapted to allow air flow  
3 through the membrane and prevent liquid flow into the hollow body  
4 as the catheter is inserted into a human body.

1 14. The system of claim 1, wherein the hollow body includes  
2 indicia on a portion of the hollow body.

1 15. A needle retraction system for an intravenous catheter  
2 placement device, comprising:

3 a hollow body having a closed end and a nose within the  
4 hollow body attached to the other end;

5 a needle hub having integral winged beams and a needle  
6 embedded therein, the needle hub coupled to the nose;

7 retainer slots on the nose holding catches forming ends of  
8 winged beams, the catches on the winged beams angled to prevent

9 the winged beams from prematurely disengaging from the retainer  
10 slots;

11 an energy storage device in contact with the needle hub; and  
12 a catheter substantially covering the needle and releasably  
13 affixed to the nose, whereby upon simultaneously depressing and  
14 then releasing the release tabs, the needle hub is triggered,  
15 projecting the needle hub and attached needle into an interior of  
16 the hollow body and retaining the needle hub and attached needle  
17 within the hollow body.

1 16. The system of claim 15, further comprising a catheter head  
2 affixed to the catheter.

1 17. The system of claim 16, further comprising a nose boot  
2 attached to and covering an end of the nose and penetrable by the  
3 needle, the nose boot cooperating with the catheter head to  
4 provide a liquid tight seal therebetween.

1 18. The system of claim 15, further comprising a needle guard  
2 removably attached to and covering the needle, nose, release tabs,  
3 catheter and a portion of the hollow body.

1 19. The system of claim 15, wherein the nose is generally  
2 elliptical.

1 20. The system of claim 15, further comprising a membrane affixed  
2 to a distal end of the needle hub adapted to allow air flow  
3 through the membrane and disallow liquid flow into the hollow body  
4 as the catheter is inserted into a human body.

1 21. A retractable intravenous catheter placement device,  
2 comprising:

3 a) a needle hub including:

4 i) winged beams and a shaft disposed therein;

5 ii) release points at ends of the winged beams;

6 iii) angled catches attached to each of the release  
7 points;

8 iv) a membrane attached to an end of the needle hub;

9 v) a cavity disposed within the needle hub; and

10 vi) a needle inserted into the shaft where a distal  
11 portion of the needle protrudes outwardly from the needle hub  
12 shaft;

13 b) a nose having a passageway therein, retainer slots  
14 cooperating with and locking in place the needle hub and a channel  
15 along an interior wall of the nose;

16 c) a body having a closed end and an opposite end coupled  
17 to the nose, the body including finger grips on an external sides  
18 of the body and channels along the interior walls of the body;

19 d) a spring contacting the needle hub;

20 e) a catheter having a catheter head removably affixed to  
21 the nose and substantially covering the needle; and  
22 f) a needle guard removably attached to and covering the  
23 needle, the catheter, release tabs, nose and a portion of the  
24 body.

1 22. A needle retraction system for an intravenous catheter  
2 placement device, comprising:

3 a hollow body having a closed end and a nose within the  
4 hollow body attached to the other end;

5 a shuttle positioned in a passageway of the nose;

6 a spring contacting the shuttle positioned in the passageway  
7 of the nose;

8 a needle hub having winged beams and catches on ends of the  
9 winged beams, the catches on the winged beams angled to prevent  
10 the winged beams from prematurely disengaging from retainer slots  
11 in the nose;

12 an energy storage device in contact with the needle hub; and

13 a catheter substantially covering the needle and releasably  
14 affixed to the nose, whereby upon depressing and releasing the  
15 release tabs projecting the needle past the shuttle, the shuttle  
16 becomes unrestrained and is projected into the passageway of the  
17 nose by the energy storage device, blocking the passageway,  
18 thereby restricting blood flow back into the hollow body and

19 retaining the needle hub and attached needle within the hollow  
20 body.

1 23. A method for retracting an introducer needle of an  
2 intravenous catheter placement device, comprising:

3 inserting a tip of the introducer needle and an intravenous  
4 catheter into a human body;

5 simultaneously depressing and releasing release tabs of a  
6 hollow body of the an intravenous catheter placement device,  
7 thereby retracting the tip of the introducer needle inside an end  
8 of the intravenous catheter;

9 inserting the intravenous catheter further into the human  
10 body;

11 simultaneously depressing the release tabs thereby triggering  
12 an energy storage device in contact with a needle hub; and

13 projecting the needle hub and needle into the hollow body and  
14 retaining the needle hub and needle in the hollow body.

1 24. A method for retracting an introducer needle of an  
2 intravenous catheter placement device into a hollow body,  
3 comprising:

4 inserting a tip of the introducer needle with a catheter into  
5 a patient; and

6 simultaneously depressing release tabs affixed to the hollow  
7 body at least once to blunt the tip of the introducer needle into  
8 the catheter and to retract the introducer needle into the hollow  
9 body.

1 25. The method of claim 24, further comprising:

2 orienting the hollow body such that a message on the hollow  
3 body is readable by a clinician.

1 26. The method of claim 25, further comprising:

2 verifying that the catheter is inserted into the correct  
3 location by observing blood flash-back into a magnified  
4 transparent verification cavity in a needle hub.

1 27. The method of claim 24, further comprising:

2 confirming retraction of the introducer needle by observation  
3 of an audible clicking sound when the release tabs are depressed;  
4 and

5 securing the introducer needle in the hollow body by force of  
6 an energy storage device.

1 28. The method of claim 24, further comprising:

2 eliminating blood flow from the catheter into the hollow body  
3 utilizing a boot cooperating with an interior surface of a



4 catheter head such that blood flow is restricted from flowing back  
5 into the hollow body.

1 29. The method of claim 24, further comprising:

2 eliminating blood flow from the catheter into the hollow body  
3 utilizing a shuttle and an energy storage device positioned in a  
4 passageway of a nose that couples to the hollow body such that  
5 when the introducer needle passes the shuttle, the shuttle becomes  
6 unrestrained and is projected into the passageway by the energy  
7 storage device and blocks the passageway, thereby restricting  
8 blood flow back into the hollow body.

1 30. The method of claim 24, further comprising:

2 eliminating blood flow from the catheter into the hollow body  
3 utilizing a shuttle and an energy storage device positioned in a  
4 passageway of a nose that couples to the hollow body.

1 31. A method for retracting a needle affixed in a needle hub in a  
2 hollow body of an intravenous catheter placement device,  
3 comprising:

4 depressing release tabs having contact pads integral to the  
5 hollow body such that the contact pads apply force to winged beams  
6 of the needle hub having catches at their ends held by retainer  
7 slots in the hollow body;

8 releasing catches of the needle hub from the retainer slots  
9 and triggering the needle hub by releasing energy stored in an  
10 energy storage device;

11 projecting the needle hub and needle towards a closed end of  
12 the hollow body; and

13 securing the needle hub and needle in an interior of the  
14 hollow body with residual force from the energy storage device.

1 32. A system for retracting a needle of a catheter placement  
2 device, comprising:

3 a hollow body having a closed end, a nose attached to an open  
4 end and release tabs;

5 a needle hub having the needle embedded therein, the needle  
6 hub releasably attached to the nose;

7 an energy storage device in contact with the needle hub;

8 a catheter having a catheter head substantially covering the  
9 needle and releasably affixed to the nose; and

10 a nose boot attached to and covering an end of the nose and  
11 penetrable by the needle, the nose boot cooperating with the  
12 catheter head to provide a liquid tight seal therebetween.

1 33. A system for retracting a needle of a catheter placement  
2 device, comprising:

3        a hollow body having a closed end, a nose attached to an open  
4 end and release tabs;  
5        a needle hub having a needle embedded therein, the needle hub  
6 releasably attached to the nose;  
7        an energy storage device in contact with the needle hub;  
8        a catheter substantially covering the needle and releasably  
9 affixed to the nose;  
10       a catheter head affixed to the catheter;  
11       a magnified transparent verification cavity in the needle hub  
12 for verifying that the catheter is inserted into the correct  
13 location by observing blood flash-back; and  
14       a nose boot attached to and covering an end of the nose and  
15 penetrable by the needle, the nose boot cooperating with the  
16 catheter head to provide a liquid tight seal therebetween, wherein  
17 upon depressing the release tabs, a tip of the needle blunts into  
18 the catheter and upon a subsequent depression of the release tabs,  
19 the needle retracts into the hollow body.

1    34. A method for retracting an introducer needle of an  
2 intravenous catheter placement device into a hollow body,  
3 comprising:

4       inserting a tip of the needle with a catheter into a patient;  
5       blunting the tip of the needle into the catheter by  
6 depressing release tabs affixed to the hollow body; and

7        depressing the release tabs to retract the needle into the  
8 hollow body.

1    35. A process for placing an intravenous catheter into a human  
2 body, comprising:

3        inserting an introducer needle with a catheter substantially  
4 covering the introducer needle into a human body;

5        partially retracting the introducer needle inside an end of  
6 the catheter to blunt a tip of the introducer needle; and

7        fully inserting the catheter into the human body.

1    36. A process for placing an intravenous catheter into a human  
2 body, comprising;

3        inserting an introducer needle with a catheter substantially  
4 covering the needle into a human body;

5        retracting the introducer needle inside a hollow body of the  
6 catheter placement device; and

7        restricting blood flow into the catheter during and after  
8 introducer needle retraction utilizing a boot coupled to the  
9 catheter placement device and adapted to perform as a plug in the  
10 catheter.

1    37. A system for retracting an introducer needle of a catheter  
2 placement device, comprising:

3 a hollow body having a closed end, a nose attached to an open  
4 end and a release tab;

5 a needle hub having the needle embedded therein, the needle  
6 hub releasably attached to the nose;

7 an energy storage device in contact with the needle hub; and

8 a catheter substantially covering the needle and releasably  
9 affixed to the nose.

1 38. The system of claim 37, wherein upon depressing the release  
2 tab at least once, the needle retracts into the hollow body.

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